# OPERATING MANUAL

# MHF120100S
# Voltage Meter

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# 1. Contact

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## Unpacking

When you get a new MHF120100S voltage meter, it is recommended that you follow these steps to inspect the instrument.

**1.Check whether there is damage due to shipment.**

Such as packing boxes or bubble bags to protect pad severely damaged,
please retain until the machine and accessories passed the test.

**2. Check the box in the article are complete.**

Contents of the box are as follows.
If the content does not match or if the instrument is damaged, contact your dealer or the Company.
Host:

MHF120100Svoltage meter 1 set.
Accessories: User Manual (pdf version) 1

**3. Check the machine**

Inspect the instrument is damaged, not working properly, or fails performance tests, please contact your dealer or the Company.

# 1 .Outline

## 1-1. The instrument Introduction

MHF120100S voltage meter is capable of measuring a voltage, current, charge and discharge capacity, time, power, and other physical quantities of the new wireless voltage meter, but also can set parameters to achieve overvoltage protection, overcurrent protection, over power protection, overcharge protection features capacity to protect and limit protection. The instrument uses a color liquid crystal display measured data, display information comprehensive and humane. This instrument is ideal for monitoring the output voltage and current, as well as the battery charge and discharge applications.

## 1-2. Main features

1, the wireless transmission of data, reducing the tedious wiring, but also to avoid errors caused by line losses.

2, two-way detection current, for the detection of the charging and discharging of the user can easily detect bidirectional current,

Without changing the wiring.

3, power and memory function, power failure after power failure a few can remember before AH, facilitate the observation and measurement.

4, the time and the number of AH clear function, without prejudice to the measurement.

5, voltage, current, charge capacity, or power simultaneously display time, display information fully clear.

6, with an output shutdown function keys, flexible output turned on or off.

7, over-voltage, over-current, over power, limit, overcharge protection.

8, online calibration, enabling customers to promptly correct the error.

9, in the liquid crystal display can be turned off if necessary, reduce power consumption.

## 1-3.**Technical Specifications**

| Items | | Parameters |
|---|---|---|
| Input voltage | Self-powered | 10V~120V |
| | External power supply | 0~120V |
| Output/input Current | | 0~100A |
| Display mode | | Color LCD |
| Display Resolution | Voltage | 0.01V |
| | Current | 0.1A |
| | Capacity | 0.01AH |
| | Time | 0.01H |
| Accuracy | Voltage | ±1％+2 |
| | Current | ±2％+5 |
| Measuring rate | | 5 times / sec. |
| Communication distance | | 10 m open to a single group |
| Protection type and setting range | OVP(Over Voltage Protection) | 0.01V~120V |
| | OVP(Over Voltage Protection) | 0.01W~9.99kW |
| | OCP(Over Current Protection) | 0.01~100A |
| | OAH(battery over charge protection) | 0.01AH~999AH |
| | OFT (overtime protection) | 0.01H~99.9H |
| Dimensions (L × W × H) | | 79*43*52（mm） |
| Mounting hole opening (mm) | | 76.5*39.2（mm） |

# 2 . Instrument Description

MHF120100S Voltage Meter

## 2-1. Panel

This instrument is split structure, consists of two parts instrumentation and power expansion board. Figure 2-1 shows the instrument panel, Figure 2-2 for the power expansion board, the two parts to pass data through the wireless module.

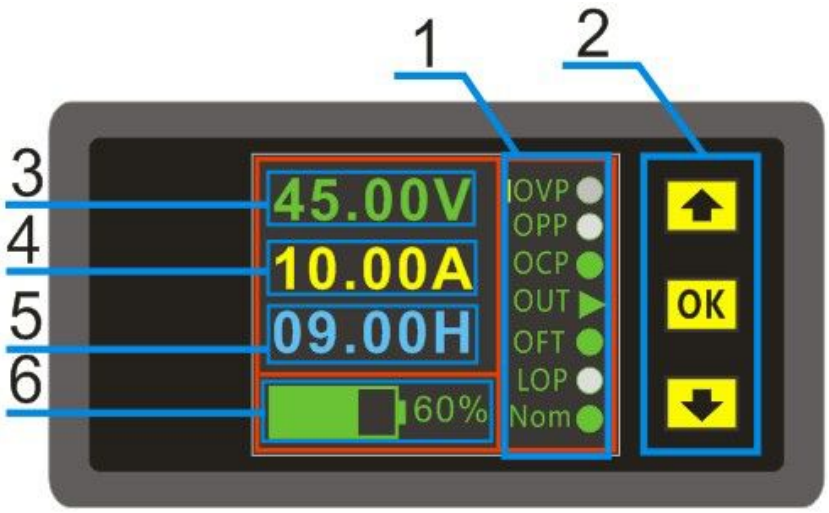



Figure 2-1 MHF120100Sfront panel

| Grade | Explanation |
|---|---|
| 1 | Set parameter display area |
| 2 | Button |
| 3 | Voltage value |
| 4 | Current value |
| 5 | Time value |
| 6 | Capacity value |

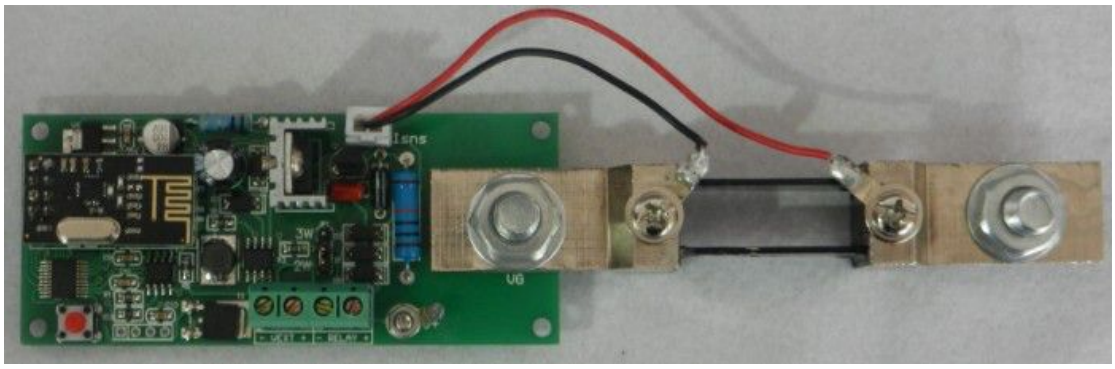
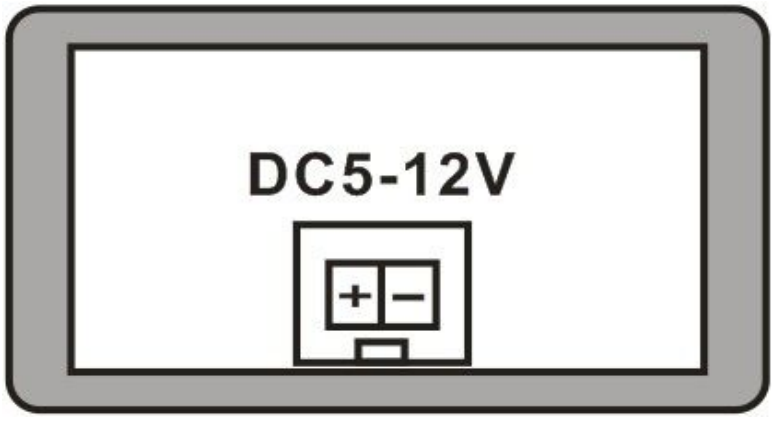


Figure 2-2 MHF120200S power expansion board

## 2-2 the connection mode

When power expansion board wiring can choose their own way, or external power supply lines (not connected relays, then relay) wiring method for wiring. To carry out in accordance with the wiring diagram shown in the wiring connection, be careful not to reverse, then the wrong.

1.The display panel power supply wiring diagram, note the direction and power polarity gap




## 2.The power supply wiring diagram and method itself

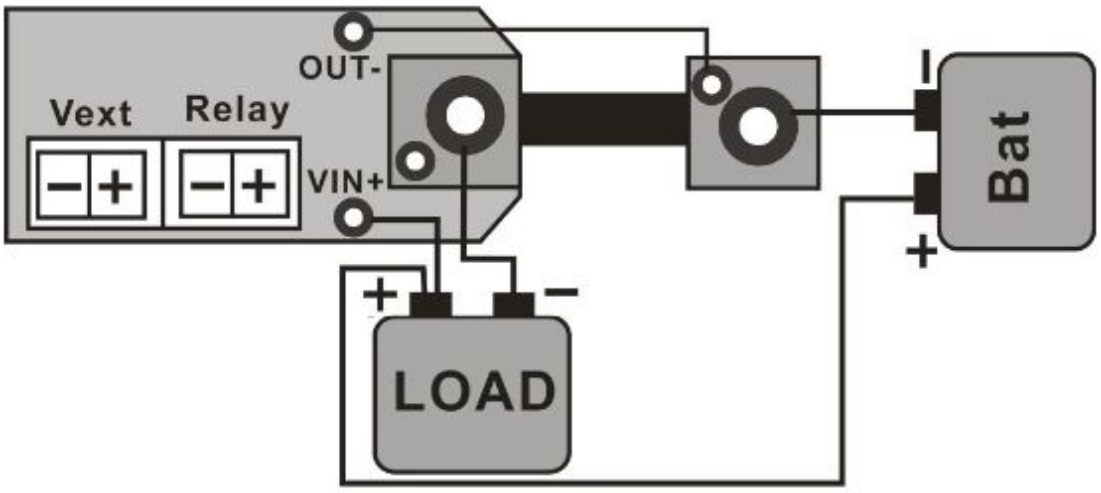



Figure 2-3 Two-wire wiring diagram

Power supply wiring method itself:

In accordance with the wiring diagram Wiring Wiring proceeds on the positive VIN + and load power expansion boards are connected to the upper left corner of the power of positive and negative power supply connected to the left side of the splitter and power expansion board mounting screws, negative load connected to the right end of the shunt screws, Vext and Relay without wiring, according to the wiring diagram shown in wiring wiring, pay attention to positive and negative, can not be reversed, then the wrong.

## 3. The external power supply is not connected to the relay wiring diagram and method

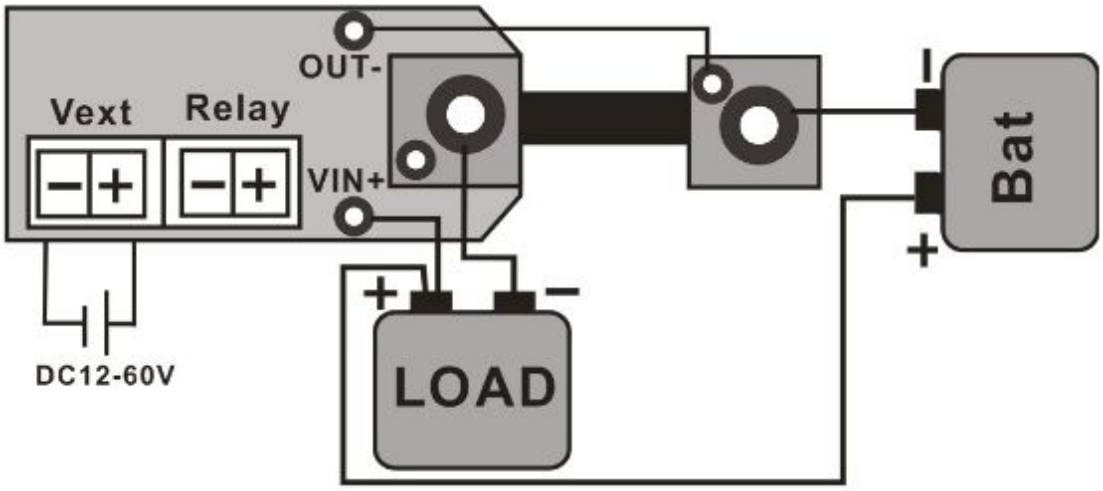



Figure 2-4 Three-wire is not connected relay wiring diagram

External power supply is not connected to the relay wiring methods:

In accordance with the wiring diagram Wiring were wiring wiring, positive VIN + and load power expansion boards are connected to the upper left corner of the power of positive and negative power supply connected to the left and a power splitter expansion board mounting screws, negative load connected to the right end of the shunt screws and jumpers to put "3W", at the external power supply Vext at the instrument power supply, external power supply voltage is DC12V - according to wiring schematic wiring 60V, be shown in the wiring, pay attention to positive and negative, can not reverse, wrong

## 4. The external power supply connected to the relay wiring diagram and method

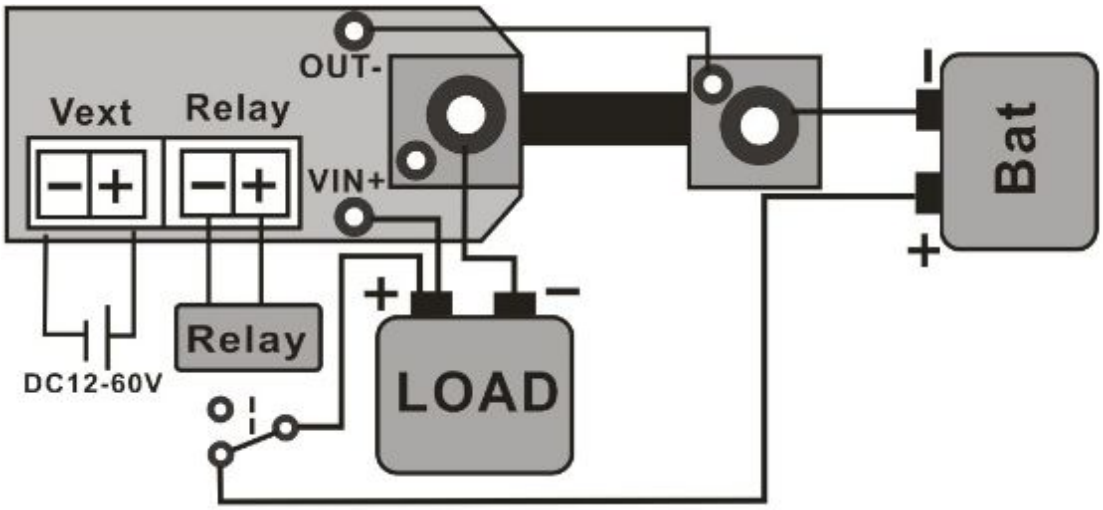



Figure 2-5 three-wire connection relay wiring diagram

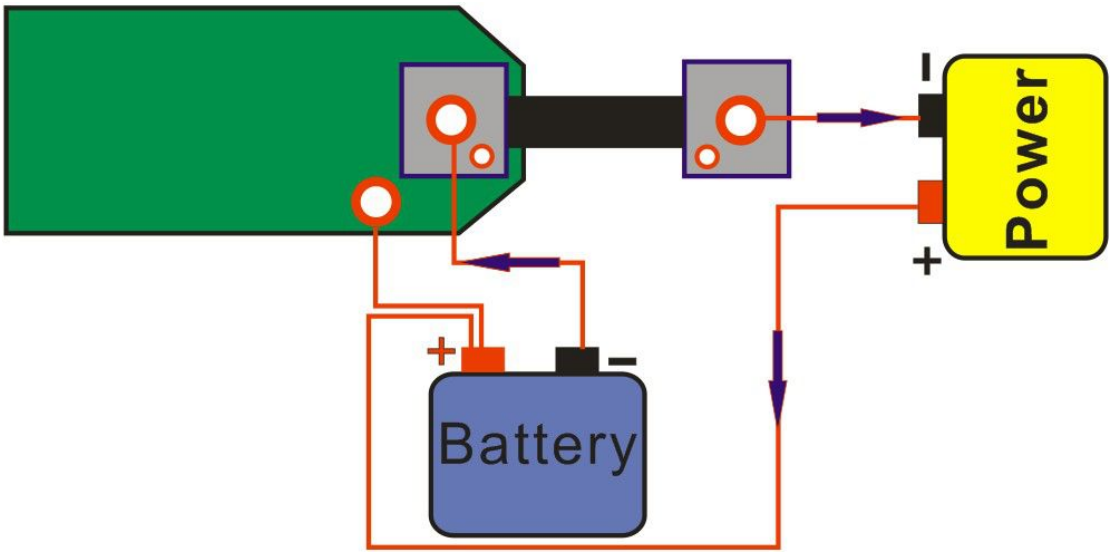
External power connection relay wiring methods:

In accordance with the wiring diagram Wiring were wiring wiring, the upper left corner of power expansion board V + connected to the power of positive and negative power supply connected to the left and a power splitter expansion board mounting screws, the load connected to the negative screw on the right side of the splitter, you need to connect the load between the positive and the positive power supply control terminal relay, Vext at the need for an external power supply for the instrument supply voltage of the external power supply is DC12V - 60V, Relay pin point relay, the relay supply voltage is selected to match the external power supply voltage, according to the wiring diagram shown in wiring when wiring, pay attention to positive and negative, can not reverse, wrong.

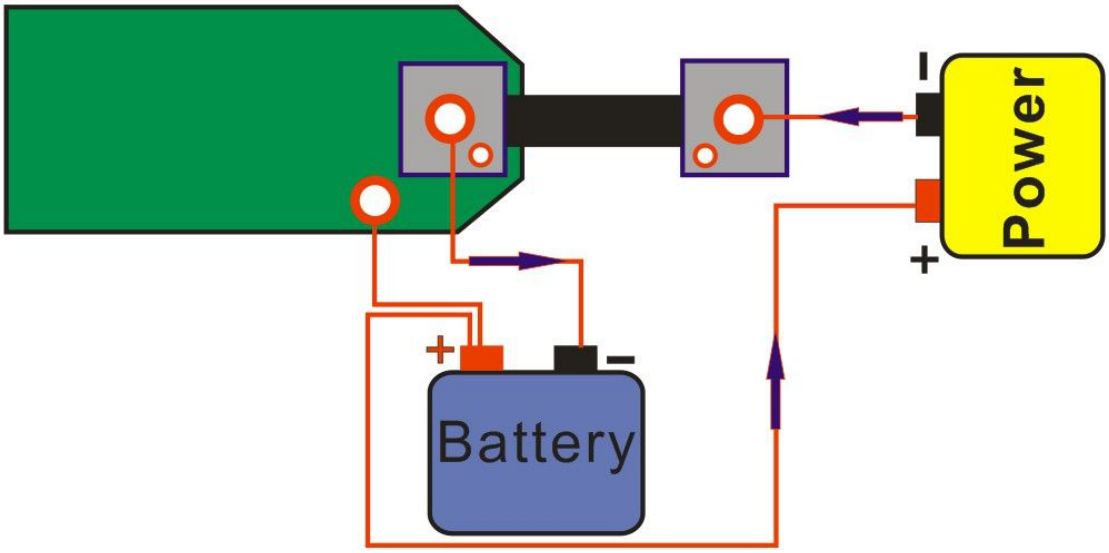
**Description:** Relay need user-equipped, as standard without relay

## 3.Charging and discharging transition graph

3.1 Current Trend Graph battery chargingh




When the battery is charging, the current value is displayed as a positive value, increasing the ampere hours.3.2 Current Trend Graph battery discharging




When the battery is discharged, the current value is displayed as negative ampere hours reduced.

# 4. Instructions

## 4-1.Wiring

Select the appropriate wiring according to the measured voltage range, ensuring input voltage is within the tolerance range of the instrument.

Note: The self-supply input voltage range: 10V ~ 120V;
External power supply input voltage range: 0V ~ 120V.

## 4-2.OUTPUT

After power ,if picked up the relay by clicking ⬆ ⬇ the yellow button to move the cursor to the OUT point, click on the OK button to control the output, if the output OUT is displayed in green light is on, if the output OUT light gray shutdown, power status on the machine by default the last pre-shutdown state.

## 4-3.Protection feature set

If you want to open a certain protection, move the yellow cursor to the corresponding item and click the OK button will set the corresponding entry lights turn green if the protection is set to turn off the protection of gray. Must be set up before the open protect protection parameters, when determining the set parameters around long press the OK button for three seconds to enter the protection function parameters power settings page, and then increase or decrease the parameters set by regulation. After setting the parameters is complete click OK to return to the initial screen.

Note: If not adjusted parameters into the adjustment page, you need to click, press once to click OK to return to the original page.

## 4-4.Protection Features

1, "OVP" overvoltage protection, if you set the OVP value, and opened the OVP protection options, when the input voltage exceeds the set voltage, the unit will automatically cut off the output, and the light from green to gray-OUT . To restore output shutdown protection, turn off protection options, to return to normal output.

2, "OPP" is over-power protection, if you set the OPP value, and opened the OPP protection options, when the output power exceeds the power, the machine will automatically cut off the output, and the light from green to gray-OUT . To restore output shutdown protection, turn off protection options, to return to normal output.

3, "OCP" is overcurrent protection, if set OCP value, and opened the OCP protection options, when the input current exceeds the set current, the machine will automatically cut off the output, and the light from green to gray-OUT . To restore output shutdown protection, turn off protection options, to return to normal output.

4, "OFT" overtime protection, if you set the OFT value, and opened the OFT protection options, when working time exceeds the set work hours, the machine will automatically cut off the output, and the light from green to gray-OUT . Protection shutdown want to restore the output, close protection options, to return to normal output.

5, "OAH" super-capacity protection, if OAH set value, and to open the OAH protection options, when the accumulated value exceeds the set AH AH value, the machine will automatically cut off the output, and the lights from green to OUT ash. Protection shutdown want to restore the output, close protection options, restore normal output, and the percentage of capacity display is set as compared to the number of AH: percentage capacity = (actual number AH / Set AH) * 100%.

6. Move the cursor to "OUT", press OK key moment header went dormant, in this state, although the LCD does not show any course but the CPU is working properly. Click the button or button to wake the LCD.

7, "Nom" is the wireless transmission of data to judge whether the normal indicator, if the light is green, indicating that the wireless communication is normal, disconnect the lights dimmed if a radio communications. Elected in "Nom" option, then click the button on the power board, Nom light at this time on the display panel turns orange. Then press Nom key to enter the pairing setting, adjust to increase or decrease the parameter settings, set up after the handshake value and power board out of clicking the OK button, the value of the factory have set, do not arbitrarily modified.

8, AH number and time correction function. Move the cursor to the yellow "OVP", and then click on the button, so that the shape of the battery capacity display, then click the OK button, you can clear the AH numbers.
9, when the "OUT" behind the arrow is green and pointing to the left current will flow into the state with the cumulative increase in the number of AH time, as "OUT" behind the red arrow pointing to the right and out of the state of current number AH with cumulative time will be reduced, attention wiring in the wiring.

## 5、Care and maintenance

1. can not use more than the meter voltage and current range, otherwise it will damage the meter.

2. the positive and negative can not be reversed, reverse can not be measured correctly.

3. the working temperature of -10 ~ 50 ℃, Storage temperature -20 ~ 70 ℃, and the instrument is in a dry environment.

4. Do not attempt to disassemble the instrument, destroy the package will void the warranty. This instrument there are no user-serviceable parts, repairs may only repair outlets or by specifying returning factory.

5. Do not move the instrument to avoid severe irreparable damage to the internal circuit when the instrument is working properly.